Collapse of the World's Largest Herbivores

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Supplementary Materials for

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Table S1. Data on the 74 large terrestrial herbivores above 100 kg, ranked by decreasing body mass within each Family. Percent area loss information comes from (*97*). Present conservation status comes from the IUCN Red List and is listed as "status 08" since some of the species may have been last assessed as far back as 2008 (*1*). Status abbreviations as in Fig. 2; LC=Least Concern, NT=Near Threatened, VU=Vulnerable, EN=Endangered, CR=Critically Endangered, EW= Extinct in Wild, PE=Potentially Extinct. Population trend (decreasing, stable, increasing, or unknown) and estimated size also come from the IUCN Red List. Source for the population of the African Elephant was (*26*). The corrected IUCN endangerment statuses in 1996 ("status 96") were provided to us by Michael Hoffmann. These corrections were made to fix inappropriate assessments, include retrospective assessments, and account for updates in taxonomic classifications (*103*). Masses were obtained from PanTHERIA (when available) and the Animal Diversity Web (*104*, *105*). Regions are based on the countries where each species is native according to the Red List, with the following exceptions (for species not classified as present and native anywhere): *Bos sauveli* (SEA), *Oryx dammah* (AF), *Elaphurus davidianus* (CN), and *Equus ferus* (AS). The regions are NA: North America, LA: Latin America (Mexico, South and Central America), EU: Europe, AF: (Africa), SEA: Southeast Asia, CN: China, IN: India, AS: the rest of Asia.

Common Name	Species Name	Mass (kg)	Status 1996	Status 2008	Trend	Region	Pop. Size	Area (% left)
Bovidae								
Indian Water Buffalo	*Bubalus arnee*	950	EN	EN	Dec	AS/SEA/IN	4,000	
Gaur	*Bos gaurus*	825	VU	VU	Dec	AS/SEA/CN/IN	22,000	10.9
Kouprey	*Bos sauveli*	791	CR(PE)	CR	Unk	SEA	50	15.4
European Bison	*Bison bonasus*	676	EN	VU	Inc	EU	3,200	0.5
Wild Yak	*Bos mutus*	650	VU	VU	Dec	CN/IN	15,000	
Giant Eland	*Tragelaphus derbianus*	646	LC	LC	Dec	AF	18,000	23.5
Banteng	*Bos javanicus*	636	EN	EN	Dec	SEA	8,000	12.9
American Bison	*Bison bison*	625	NT	NT	Stable	NA	30,000	0.9
African Buffalo	*Syncerus caffer*	593	LC	LC	Dec	AF	890,000	
Common Eland	*Tragelaphus oryx*	563	LC	LC	Stable	AF	140,000	39.5
Muskox	*Ovibos moschatus*	313	LC	LC	Stable	NA	140,000	
Takin	*Budorcas taxicolor*	295	VU	VU	Dec	AS/SEA/CN/IN		
Bongo	*Tragelaphus eurycerus*	271	NT	NT	Dec	AF	28,000	65.1
Roan Antelope	*Hippotragus equinus*	264	LC	LC	Dec	AF	76,000	
Lowland Anoa	*Bubalus depressicornis*	257	EN	EN	Dec	SEA	2,500	
Tamaraw	*Bubalus mindorensis*	254	EN	CR	Dec	SEA	300	
Sable Antelope	*Hippotragus niger*	236	LC	LC	Stable	AF	75,000	49.1
Mountain Nyala	*Tragelaphus buxtoni*	215	EN	EN	Dec	AF	3,300	56
Greater Kudu	*Tragelaphus strepsiceros*	206	LC	LC	Stable	AF	480,000	
Waterbuck	*Kobus ellipsiprymnus*	204	LC	LC	Dec	AF	200,000	
Beisa Oryx	*Oryx beisa*	201	NT	NT	Dec	AF	67,000	
Scimitar-horned Oryx	*Oryx dammah*	200	CR	EW		AF		
Common Wildebeest	*Connochaetes taurinus*	199	LC	LC	Stable	AF	1,600,000	
Gemsbok	*Oryx gazella*	188	LC	LC	Stable	AF	370,000	
Nilgai	*Boselaphus tragocamelus*	182	LC	LC	Stable	AS/IN		
Mountain Anoa	*Bubalus quarlesi*	182	EN	EN	Dec	SEA	2,500	
Hartebeest	*Alcelaphus buselaphus*	161	LC	LC	Dec	AF	360,000	30.3
Black Wildebeest	*Connochaetes gnou*	157	LC	LC	Inc	AF	18,000	
Topi/tsessebe	*Damaliscus lunatus*	136	LC	LC	Dec	AF	300,000	
Siberian Ibex	*Capra sibirica*	130	LC	LC	Unk	AS/EU/CN/IN		
Argali	*Ovis ammon*	114	NT	NT	Dec	AS/EU/CN/IN		
Sumatran Serow	*Capricornis sumatraensis*	111	VU	VU	Dec	SEA		
Walia Ibex	*Capra walie*	100	CR	EN	Inc	AF	500	
Camelidae								
Bactrian Camel	*Camelus ferus*	555	EN	CR	Dec	AS/CN	950	
Guanaco	*Lama guanicoe*	128	LC	LC	Stable	LA	560,000	

Common Name	Species Name	Mass (kg)	Status 1996	Status 2008	Trend	Region	Pop. Size	Area (% left)
Cervidae								
Moose	*Alces americanus*	541	LC	LC	Stable	AS/EU/NA/CN		
Eurasian Elk	*Alces alces*	462	LC	LC	Inc	AS/EU/CN	1,500,000	
Red Deer	*Cervus elaphus*	241	LC	LC	Inc	AF/AS/EU/NA/CN/IN		
Sambar	*Rusa unicolor*	178	VU	VU	Dec	AS/SEA/CN/IN		
Barasingha	*Rucervus duvaucelii*	171	VU	VU	Dec	AS/IN	4,300	
Père David's Deer	*Elaphurus davidianus*	166	EW	EW	Inc	CN		
White-lipped Deer	*Przewalskium albirostris*	162	VU	VU	Unk	CN		
Marsh Deer	*Blastocerus dichotomus*	113	VU	VU	Dec	LA		
Reindeer	*Rangifer tarandus*	109	LC	LC	Stable	AS/EU/NA		10.6
Elephantidae								
African Elephant	*Loxodonta africana*	3825	VU	VU	Inc	AF	500,000	19.9
Asian Elephant	*Elephas maximus*	3270	EN	EN	Dec	AS/SEA/CN/IN	47,000	19.5
Equidae								
Grevy's Zebra	*Equus grevyi*	408	EN	EN	Stable	AF	2,200	8.2
Plains Zebra	*Equus quagga*	400	LC	LC	Stable	AF	660,000	
Mountain Zebra	*Equus zebra*	282	VU	VU	Unk	AF	15,000	
Kiang	*Equus kiang*	281	LC	LC	Stable	AS/CN/IN	65,000	
African Wild Ass	*Equus africanus*	275	CR	CR	Dec	AF	600	2.5
Przewalski's Horse	*Equus ferus*	250	EW	EN	Inc	AS	310	
Asiatic Wild Ass	*Equus hemionus*	235	NT	EN	Dec	AS/CN/IN	8,400	
Giraffidae								
Giraffe	*Giraffa camelopardalis*	965	LC	LC	Dec	AF	80,000	11.3
Okapi	*Okapia johnstoni*	230	NT	NT	Stable	AF	43,000	31.6
Hippopotamidae								
Hippopotamus	*Hippopotamus amphibius*	1536	VU	VU	Dec	AF	140,000	17.2
Pygmy Hippopotamus	*Choeropsis liberiensis*	235	EN	EN	Dec	AF	2,500	1.3
Hominidae								
Eastern Gorilla	*Gorilla beringei*	149	EN	EN	Dec	AF	5,900	
Western Gorilla	*Gorilla gorilla*	113	EN	CR	Dec	AF	95,000	
Rhinocerotidae								
White Rhinoceros	*Ceratotherium simum*	2286	NT	NT	Inc	AF	20,000	3
Indian Rhinoceros	*Rhinoceros unicornis*	1844	EN	CR	Inc	AS/IN	2,600	4.7
Javan Rhinoceros	*Rhinoceros sondaicus*	1750	CR	CR	Unk	SEA	50	4.1
Sumatran Rhinoceros	*Dicerorhinus sumatrensis*	1046	CR	CR	Dec	SEA	280	8
Black Rhinoceros	*Diceros bicornis*	~1000	CR	CR	Inc	AF	4,900	4.6
Suidae								
Forest Hog	*Hylochoerus meinertzhageni*	198	LC	LC	Dec	AF		
Philippine Warty Pig	*Sus philippensis*	191	VU	VU	Dec	SEA		
Oliver's Warty Pig	*Sus oliveri*	191	EN	EN	Dec	SEA		
Visayan Warty Pig	*Sus cebifrons*	191	CR	CR	Dec	SEA		
Palawan Bearded Pig	*Sus ahoenobarbus*	136	VU	VU	Dec	SEA		
Bearded Pig	*Sus barbatus*	136	NT	VU	Dec	SEA		41.3
Tapiridae								
Malayan Tapir	*Tapirus indicus*	311	VU	EN	Dec	SEA		
Baird's Tapir	*Tapirus bairdii*	294	EN	EN	Dec	LA	5,500	
Lowland Tapir	*Tapirus terrestris*	169	NT	VU	Dec	LA		
Mountain Tapir	*Tapirus pinchaque*	157	EN	EN	Dec	LA	2,500	

Table S2. The number of large herbivores (threatened, total, and facing each of the four main threats) found in each ecoregion. Only the 30 ecoregions containing at least 5 threatened large herbivores are shown in this table. General information on the ecoregion mapping approach is given in (*3*).

Ecoregion	Threatened Herbivores	Total Herbivores	Hunting for Meat	Livestock Competition	Habitat Loss	Hunting for Body Parts
Himalayan subtropical broadleaf forests	7	8	6	3	4	3
Sunda Shelf mangroves	7	7	4	0	2	3
Peninsular Malaysian rain forests	7	7	5	1	2	2
Eastern Himalayan broadleaf forests	6	9	6	4	3	2
Terai-Duar savanna and grasslands	6	7	5	3	4	3
Brahmaputra Valley semi-evergreen forests	6	7	4	3	3	3
Tenasserim-South Thailand semi-evergreen rain forests	6	6	4	1	3	2
Sumatran montane rain forests	6	6	4	0	1	2
Sumatran lowland rain forests	6	6	4	0	1	2
Peninsular Malaysian montane rain forests	6	6	4	1	2	2
Meghalaya subtropical forests	6	6	4	3	3	3
Kayah-Karen montane rain forests	6	6	4	2	3	2
Somali Acacia-Commiphora bushlands and thickets	5	16	13	4	7	5
Ethiopian montane forests	5	16	15	5	7	3
Ethiopian montane grasslands and woodlands	5	15	13	4	8	3
Eastern Himalayan alpine shrub and meadows	5	8	7	4	2	1
Eastern highlands moist deciduous forests	5	6	5	3	4	2
Sumatran tropical pine forests	5	5	4	0	1	1
Sumatran freshwater swamp forests	5	5	3	0	0	1
Southeastern Indochina dry evergreen forests	5	5	2	1	2	2
Northern Triangle subtropical forests	5	5	4	2	2	1
Northern Indochina subtropical forests	5	5	3	1	2	1
Myanmar coastal rain forests	5	5	3	1	2	1
Myanmar Coast mangroves	5	5	3	1	2	1
Mizoram-Manipur-Kachin rain forests	5	5	3	1	2	1
Irrawaddy moist deciduous forests	5	5	3	1	2	1
Chao Phraya lowland moist deciduous forests	5	5	3	1	2	1
Central Indochina dry forests	5	5	3	2	3	2
Borneo montane rain forests	5	5	2	0	1	2
Borneo lowland rain forests	5	5	2	0	1	2

Table S3. The number of large herbivores (threatened and total) found in each ecoregion. Only the 30 ecoregions containing at least 5 threatened large herbivores are shown in this table. Biogeographic realms ("Realm") and biomes are mapped in figure 1 of (*3*). General information on the ecoregion mapping approach is also given in (*3*).

Ecoregion	Threatened Herbivores	Total Herbivores	Realm	Biome
Himalayan subtropical broadleaf forests	7	8	IndoMalay	Tropical & Subtropical Moist Broadleaf Forests
Sunda Shelf mangroves	7	7	IndoMalay	Mangroves
Peninsular Malaysian rain forests	7	7	IndoMalay	Tropical & Subtropical Moist Broadleaf Forests
Eastern Himalayan broadleaf forests	6	9	IndoMalay	Temperate Broadleaf & Mixed Forests
Terai-Duar savanna and grasslands	6	7	IndoMalay	Tropical & Subtropical Grasslands, Savannas & Shrublands
Brahmaputra Valley semi-evergreen forests	6	7	IndoMalay	Tropical & Subtropical Moist Broadleaf Forests
Tenasserim-South Thailand semi-evergreen rain forests	6	6	IndoMalay	Tropical & Subtropical Moist Broadleaf Forests
Sumatran montane rain forests	6	6	IndoMalay	Tropical & Subtropical Moist Broadleaf Forests
Sumatran lowland rain forests	6	6	IndoMalay	Tropical & Subtropical Moist Broadleaf Forests
Peninsular Malaysian montane rain forests	6	6	IndoMalay	Tropical & Subtropical Moist Broadleaf Forests
Meghalaya subtropical forests	6	6	IndoMalay	Tropical & Subtropical Moist Broadleaf Forests
Kayah-Karen montane rain forests	6	6	IndoMalay	Tropical & Subtropical Moist Broadleaf Forests
Somali Acacia-Commiphora bushlands and thickets	5	16	Afrotropics	Tropical & Subtropical Grasslands, Savannas & Shrublands
Ethiopian montane forests	5	16	Afrotropics	Tropical & Subtropical Moist Broadleaf Forests
Ethiopian montane grasslands and woodlands	5	15	Afrotropics	Montane Grasslands & Shrublands
Eastern Himalayan alpine shrub and meadows	5	8	Palearctic	Montane Grasslands & Shrublands
Eastern highlands moist deciduous forests	5	6	IndoMalay	Tropical & Subtropical Moist Broadleaf Forests
Sumatran tropical pine forests	5	5	IndoMalay	Tropical & Subtropical Coniferous Forests
Sumatran freshwater swamp forests	5	5	IndoMalay	Tropical & Subtropical Moist Broadleaf Forests
Southeastern Indochina dry evergreen forests	5	5	IndoMalay	Tropical & Subtropical Dry Broadleaf Forests
Northern Triangle subtropical forests	5	5	IndoMalay	Tropical & Subtropical Moist Broadleaf Forests
Northern Indochina subtropical forests	5	5	IndoMalay	Tropical & Subtropical Moist Broadleaf Forests
Myanmar coastal rain forests	5	5	IndoMalay	Tropical & Subtropical Moist Broadleaf Forests
Myanmar Coast mangroves	5	5	IndoMalay	Mangroves
Mizoram-Manipur-Kachin rain forests	5	5	IndoMalay	Tropical & Subtropical Moist Broadleaf Forests
Irrawaddy moist deciduous forests	5	5	IndoMalay	Tropical & Subtropical Moist Broadleaf Forests
Chao Phraya lowland moist deciduous forests	5	5	IndoMalay	Tropical & Subtropical Moist Broadleaf Forests
Central Indochina dry forests	5	5	IndoMalay	Tropical & Subtropical Dry Broadleaf Forests
Borneo montane rain forests	5	5	IndoMalay	Tropical & Subtropical Moist Broadleaf Forests
Borneo lowland rain forests	5	5	IndoMalay	Tropical & Subtropical Moist Broadleaf Forests

Table S4. The threatened large herbivores found in each of the ecoregions with at least five threatened large herbivores. See table S1 for the scientific name of each listed species.

Ecoregion	Threatened Large Herbivores
Himalayan subtropical broadleaf forests	Asian Elephant, Barasingha, Gaur, Indian Rhinoceros, Indian Water Buffalo, Sambar, Takin
Sunda Shelf mangroves	Asian Elephant, Banteng, Bearded Pig, Malayan Tapir, Sambar, Sumatran Rhinoceros, Sumatran Serow
Peninsular Malaysian rain forests	Asian Elephant, Bearded Pig, Gaur, Malayan Tapir, Sambar, Sumatran Rhinoceros, Sumatran Serow
Eastern Himalayan broadleaf forests	Asian Elephant, Gaur, Indian Rhinoceros, Indian Water Buffalo, Sambar, Takin
Terai-Duar savanna and grasslands	Asian Elephant, Barasingha, Gaur, Indian Rhinoceros, Indian Water Buffalo, Sambar
Brahmaputra Valley semi-evergreen forests	Asian Elephant, Barasingha, Gaur, Indian Rhinoceros, Indian Water Buffalo, Sambar
Tenasserim-South Thailand semi-evergreen rain forests	Asian Elephant, Banteng, Gaur, Malayan Tapir, Sambar, Sumatran Serow
Sumatran montane rain forests	Asian Elephant, Bearded Pig, Malayan Tapir, Sambar, Sumatran Rhinoceros, Sumatran Serow
Sumatran lowland rain forests	Asian Elephant, Bearded Pig, Malayan Tapir, Sambar, Sumatran Rhinoceros, Sumatran Serow
Peninsular Malaysian montane rain forests	Asian Elephant, Gaur, Malayan Tapir, Sambar, Sumatran Rhinoceros, Sumatran Serow
Meghalaya subtropical forests	Asian Elephant, Barasingha, Gaur, Indian Rhinoceros, Indian Water Buffalo, Sambar
Kayah-Karen montane rain forests	Asian Elephant, Banteng, Gaur, Indian Water Buffalo, Malayan Tapir, Sambar
Somali Acacia-Commiphora bushlands and thickets	African Elephant, African Wild Ass, Black Rhinoceros, Grevy's Zebra, Hippopotamus
Ethiopian montane forests	African Elephant, African Wild Ass, Grevy's Zebra, Hippopotamus, Mountain Nyala
Ethiopian montane grasslands and woodlands	African Elephant, African Wild Ass, Hippopotamus, Mountain Nyala, Walia Ibex
Eastern Himalayan alpine shrub and meadows	Gaur, Sambar, Takin, White-lipped Deer, Wild Yak
Eastern highlands moist deciduous forests	Asian Elephant, Barasingha, Gaur, Indian Water Buffalo, Sambar
Sumatran tropical pine forests	Asian Elephant, Bearded Pig, Malayan Tapir, Sambar, Sumatran Serow
Sumatran freshwater swamp forests	Asian Elephant, Bearded Pig, Malayan Tapir, Sambar, Sumatran Rhinoceros
Southeastern Indochina dry evergreen forests	Asian Elephant, Banteng, Gaur, Javan Rhinoceros, Sambar
Northern Triangle subtropical forests	Asian Elephant, Gaur, Indian Water Buffalo, Sambar, Takin
Northern Indochina subtropical forests	Asian Elephant, Banteng, Gaur, Sambar, Takin
Myanmar coastal rain forests	Asian Elephant, Banteng, Gaur, Malayan Tapir, Sambar
Myanmar Coast mangroves	Asian Elephant, Banteng, Gaur, Malayan Tapir, Sambar
Mizoram-Manipur-Kachin rain forests	Asian Elephant, Banteng, Gaur, Sambar, Takin
Irrawaddy moist deciduous forests	Asian Elephant, Banteng, Gaur, Malayan Tapir, Sambar
Chao Phraya lowland moist deciduous forests	Asian Elephant, Banteng, Gaur, Malayan Tapir, Sambar
Central Indochina dry forests	Asian Elephant, Banteng, Gaur, Indian Water Buffalo, Sambar
Borneo montane rain forests	Asian Elephant, Banteng, Bearded Pig, Sambar, Sumatran Rhinoceros
Borneo lowland rain forests	Asian Elephant, Banteng, Bearded Pig, Sambar, Sumatran Rhinoceros

Table S5. Summary of research effort for the period 1965 to June 2014. Numbers are the number of published articles based on species name searches using Thomson Reuters' Web of Science and the research categories of (environmental sciences or environmental studies or anatomy morphology or evolutionary biology or forestry or behavioral sciences or genetics heredity or marine freshwater biology or biodiversity conservation or biology or reproductive biology or developmental biology or ecology or veterinary sciences or multidisciplinary sciences or zoology). See Table S1 for acronym definitions. Note that searches for Eurasian elk (*Alces alces*) and moose (*Alces americanus*) are combined due to overlapping use of the species name *Alces alces*. Data on the number of published articles should be used for relative comparisons. Because these data do not reflect gray literature and other difficult to obtain publications, the totals are likely an underestimate of the absolute number of articles for some species.

Region	Median articles per species	Mean articles per species
Developing	39	172
Developed	206	790
AF	48	245
AS	52	415
EU	651	1045
NA	1125	1354
LA	47	65
SEA	13	47
CN	38	397
IN	28	324

Status	Median articles per species	Mean articles per species
LC/NT	50	296
VU/EN/CR/EW	25	100

Family	Number of species	Median articles per species	Mean articles per species	Total articles per species
Elephantidae	2	760	760	1520
Hominidae	2	570	570	1140
Rhinocerotidae	5	120	157	784
Giraffidae	2	117	117	234
Camelidae	2	81	81	161
Hippopotamidae	2	60	60	120
Cervidae	8	52	760	6080
Equidae	7	42	44	305
Tapiridae	4	39	41	165
Bovidae	33	34	75	2465
Suidae	6	4	4	26

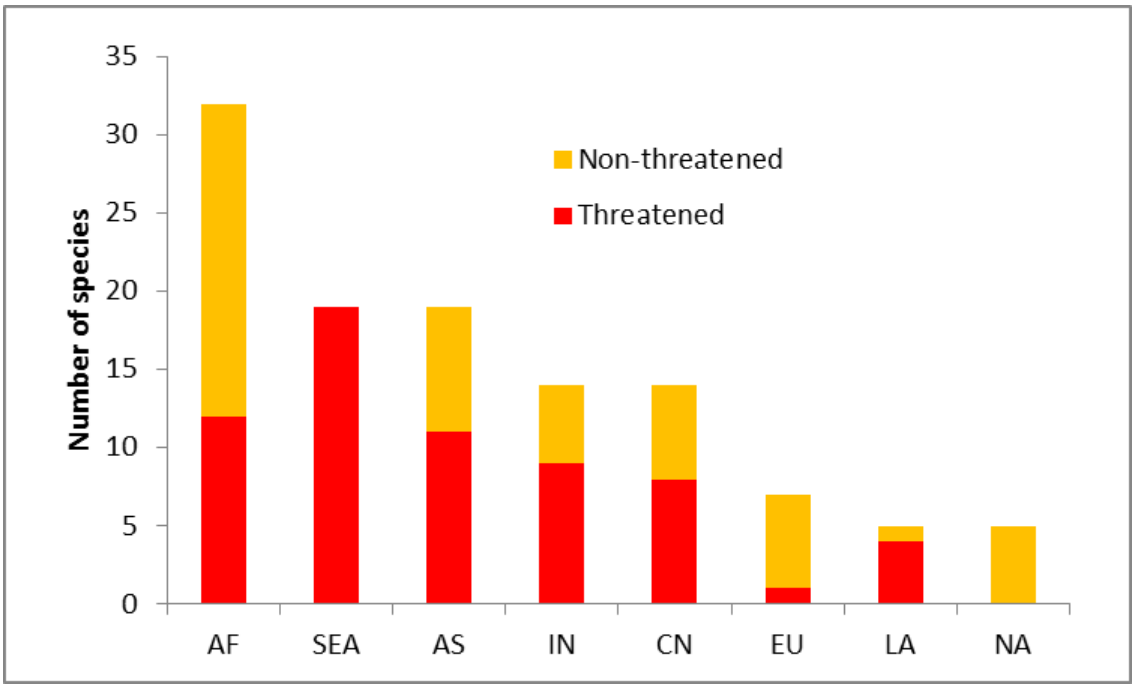


fig. S1. Regional patterns of endangerment of large herbivores. The regions are AF: (Africa), SEA: Southeast Asia, AS: the rest of Asia, IN: India, CN: China, EU: Europe. LA: Latin America (South and Central America), NA: North America.

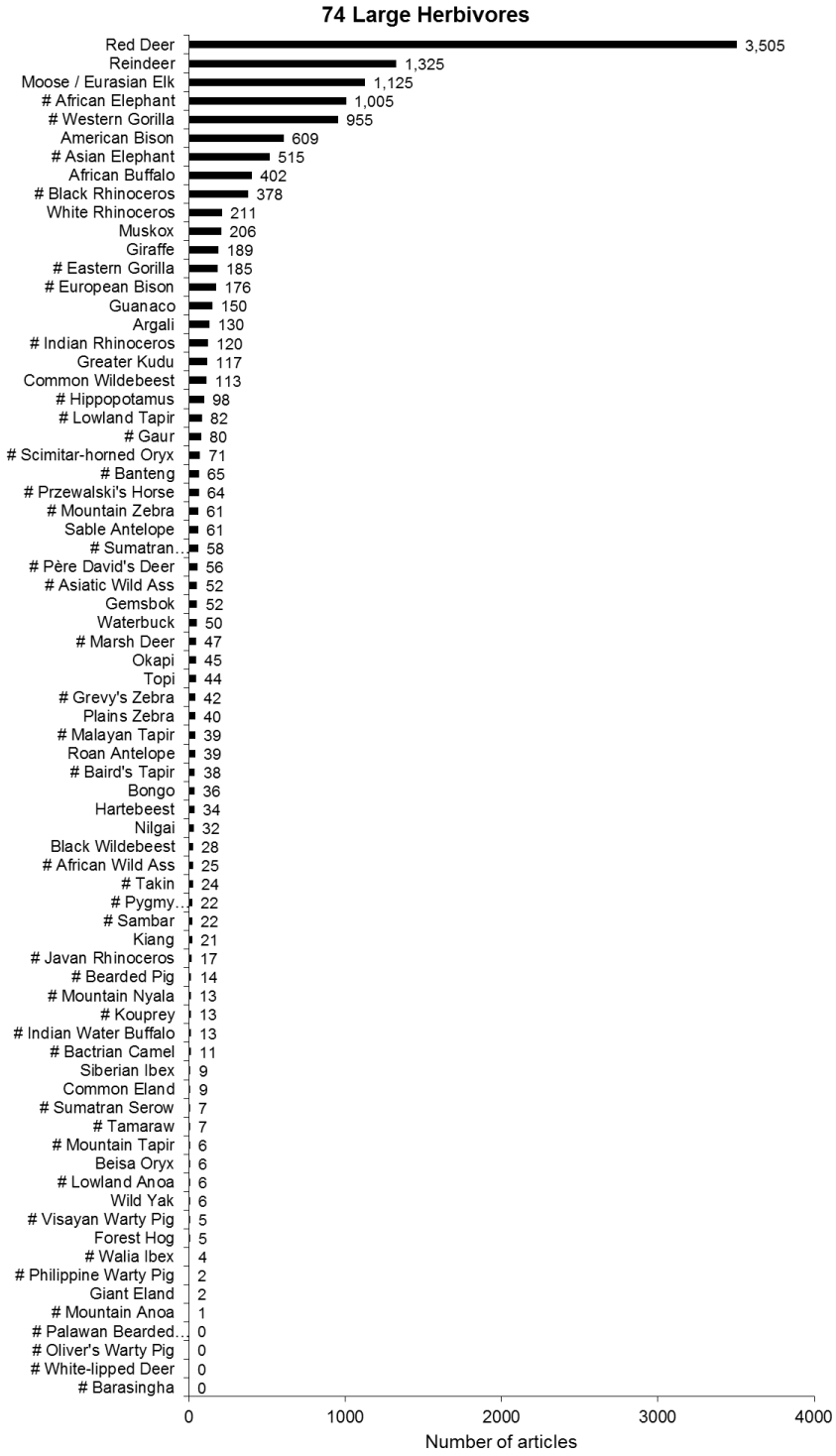
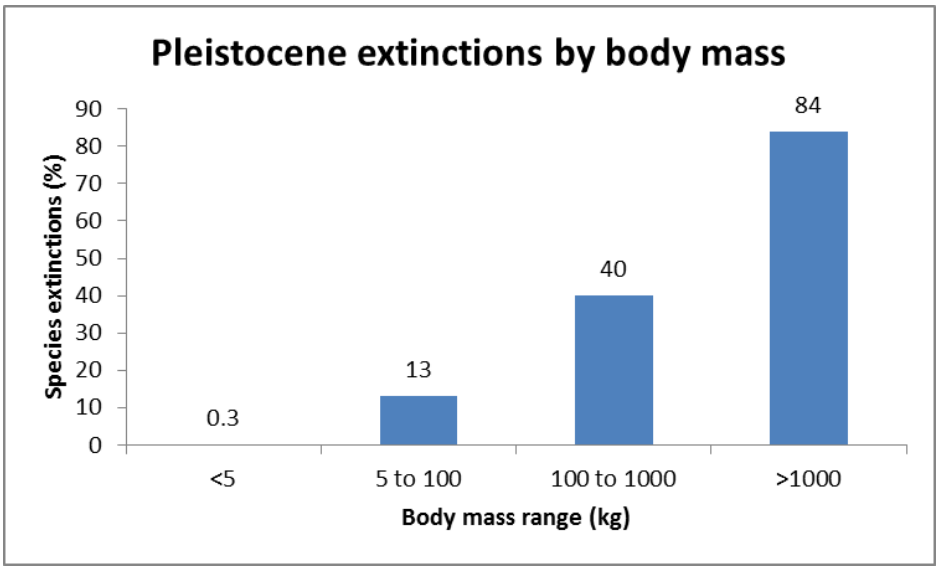


fig. S2 Number of published scientific articles by species. See Table S1 for scientific names and Table S2 for search methods. Note that searches for Eurasian elk (*Alces alces*) and moose (*Alces americanus*) are combined due to overlapping use of the species name *Alces alces*. Hash (#) marks before species names represent threatened species. These data on the number of published articles should be used for relative comparisons and not as absolute numbers. Because these data do not reflect gray literature and other difficult to obtain publications, the totals are likely an underestimate of the number of articles for some species.

(A)



(B)

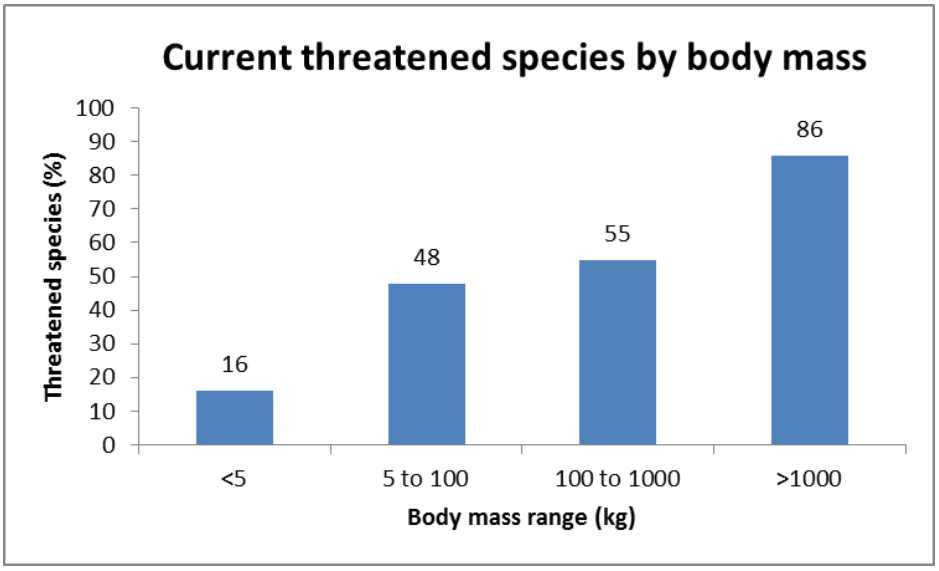


fig. S3. Comparison of Pleistocene extinctions by body mass with current threatened species by body mass. (A) Mammalian herbivore extinctions by body size during the late Pleistocene across the globe showing, on the y-axis, the percentage of mammal species that went extinct. (B) Current threatened mammalian herbivores by body size across the globe showing, on the y axis, the percentage of mammal species that are now threatened. Source (A) (*106*) and (B) (*1*).

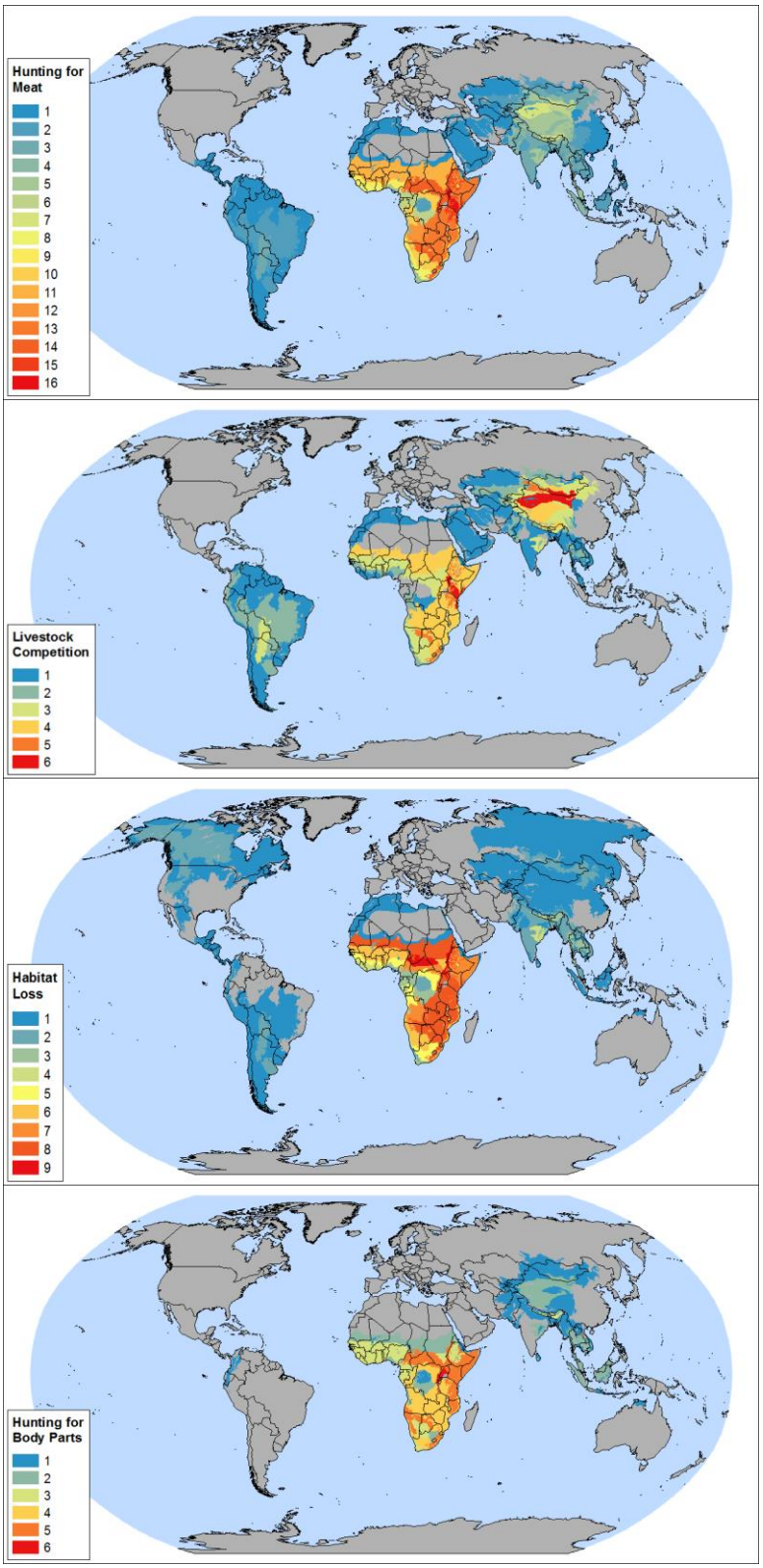


fig. S4. Global distribution of the four main threats faced by large herbivores. Species are categorized based on IUCN Red List descriptions. The color scales represent the number of large herbivore species under specific threats by ecoregion (*3*).

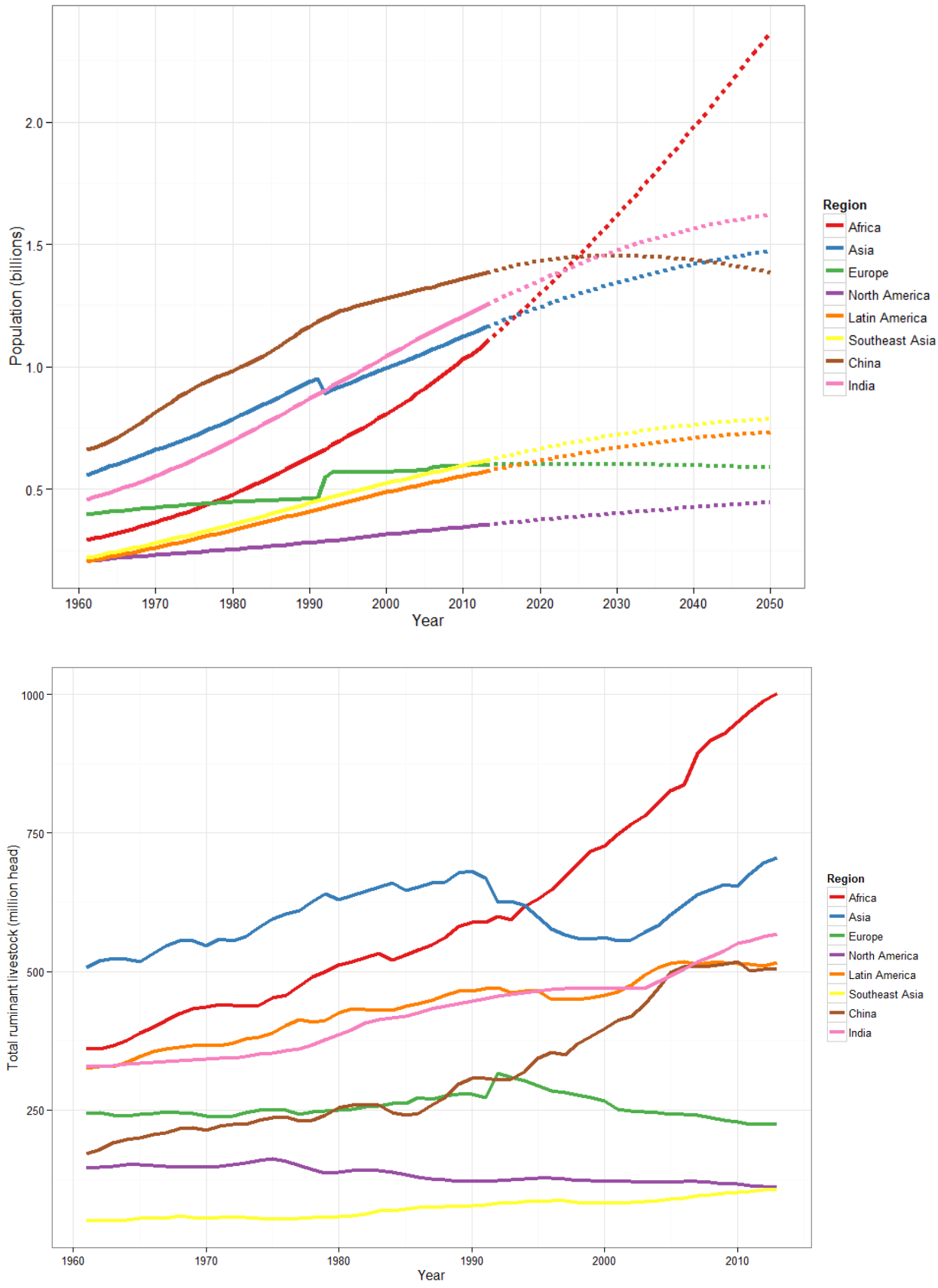
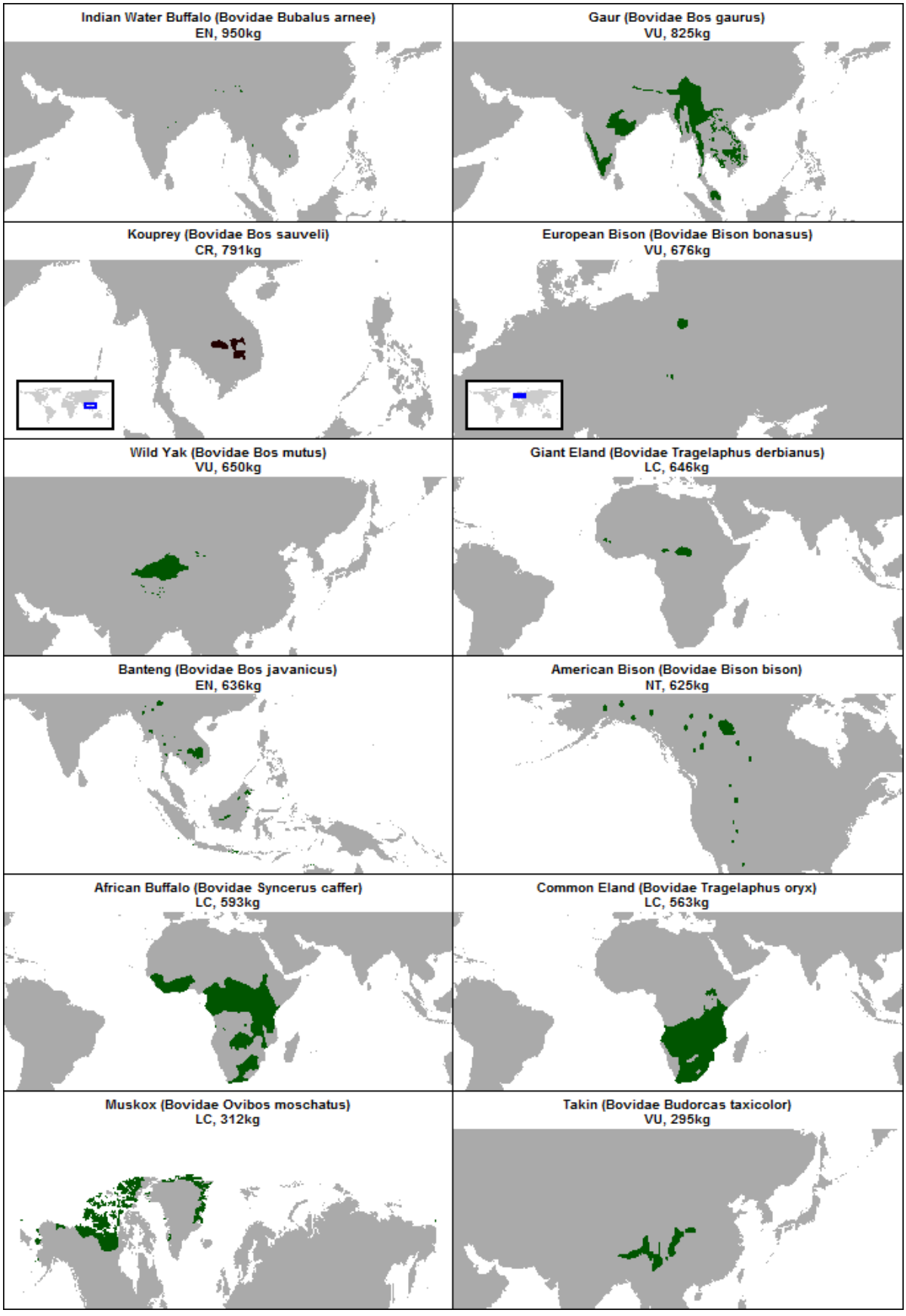
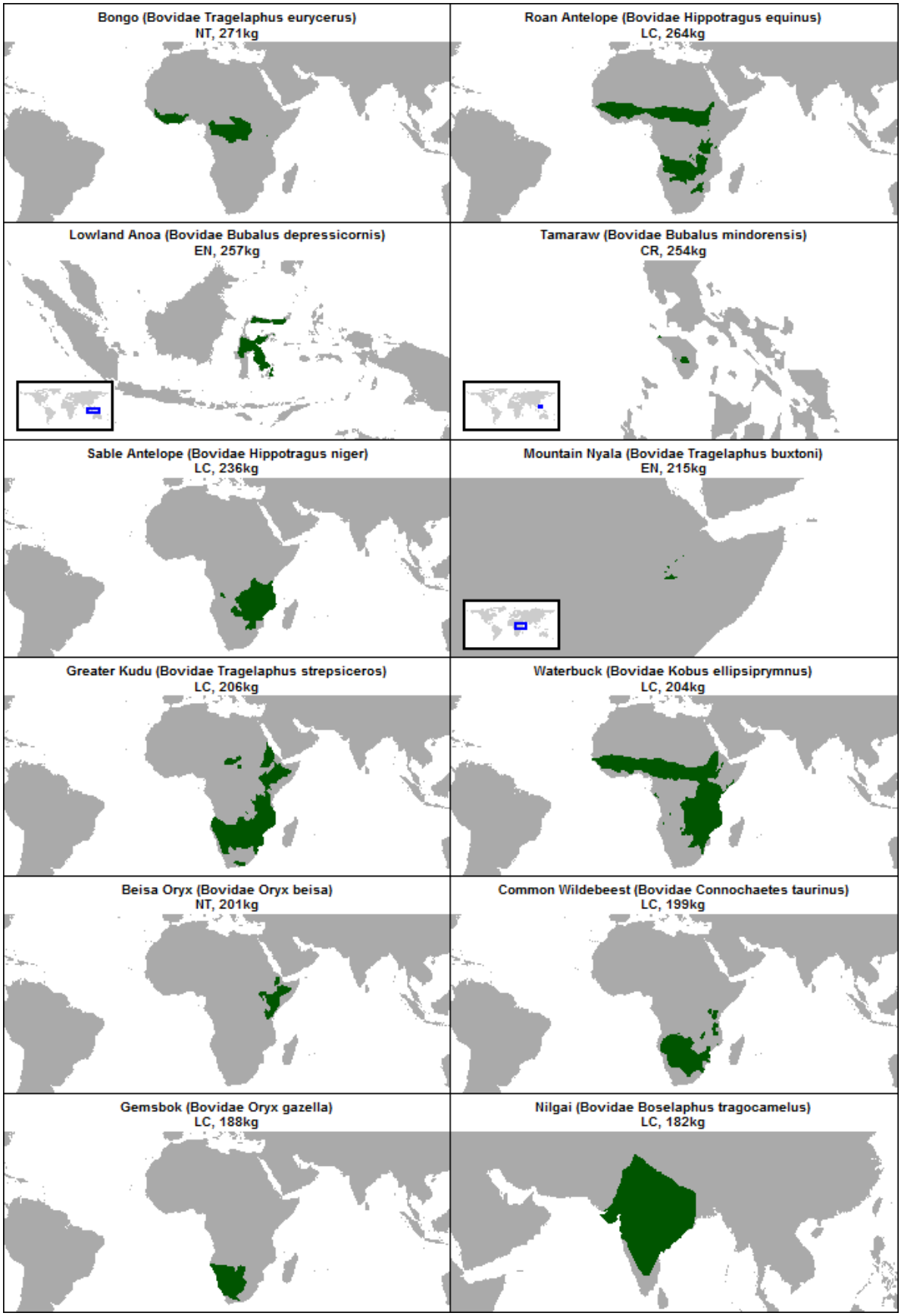
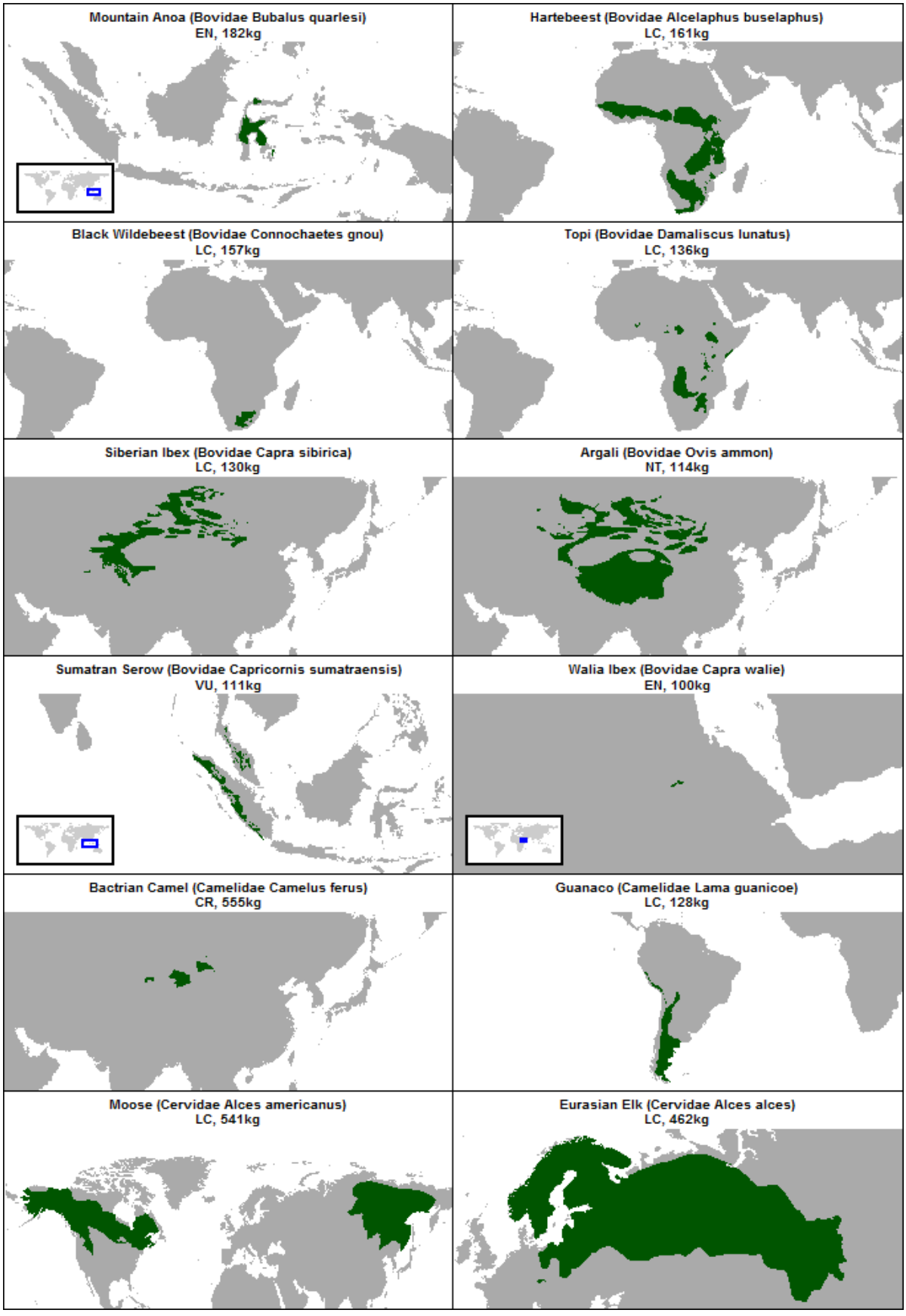
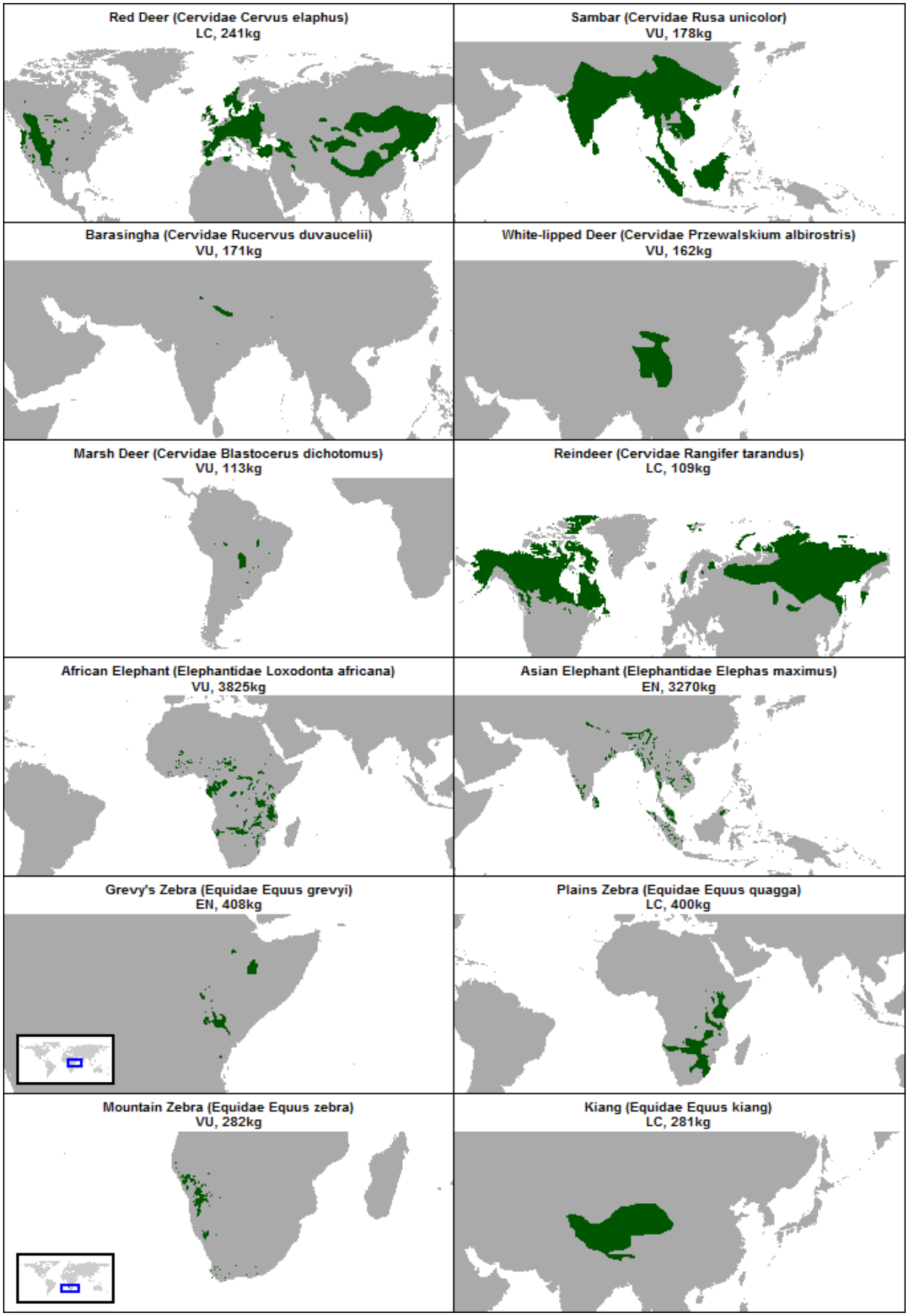


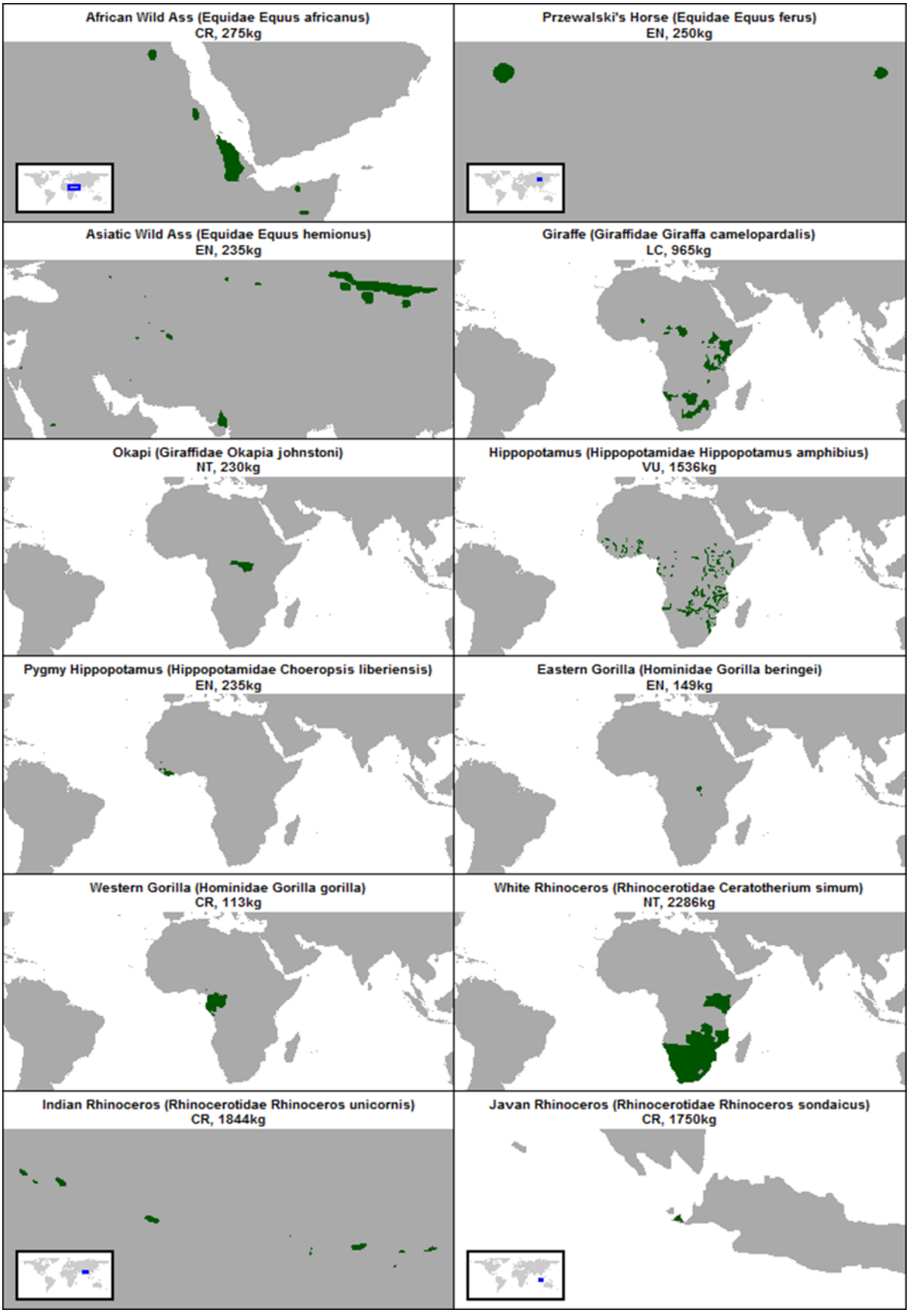
fig. S5. Human population trends and projections by region (top) and ruminant livestock trends by region (bottom). Source: (*107*).


Indian Water Buffalo (Bovidae Bubalus arnee)
EN, 950kg
Gaur (Bovidae Bos gaurus)
VU, 825kg
Kouprey (Bovidae Bos sauveli)
CR, 791kg
European Bison (Bovidae Bison bonasus)
VU, 676kg
Wild Yak (Bovidae Bos mutus)
VU, 650kg
Giant Eland (Bovidae Tragelaphus derbianus)
LC, 646kg
Banteng (Bovidae Bos javanicus)
EN, 636kg
American Bison (Bovidae Bison bison)
NT, 625kg
African Buffalo (Bovidae Syncerus caffer)
LC, 593kg
Common Eland (Bovidae Tragelaphus oryx)
LC, 563kg
Muskox (Bovidae Ovibos moschatus)
LC, 312kg
Takin (Bovidae Budorcas taxicolor)
VU, 295kg


Bongo (Bovidae Tragelaphus eurycerus)
NT, 271kg
Roan Antelope (Bovidae Hippotragus equinus)
LC, 264kg
Lowland Anoa (Bovidae Bubalus depressicornis)
EN, 257kg
Tamaraw (Bovidae Bubalus mindorensis)
CR, 254kg
Sable Antelope (Bovidae Hippotragus niger)
LC, 236kg
Mountain Nyala (Bovidae Tragelaphus buxtoni)
EN, 215kg
Greater Kudu (Bovidae Tragelaphus strepsiceros)
LC, 206kg
Waterbuck (Bovidae Kobus ellipsiprymnus)
LC, 204kg
Beisa Oryx (Bovidae Oryx beisa)
NT, 201kg
Common Wildebeest (Bovidae Connochaetes taurinus)
LC, 199kg
Gemsbok (Bovidae Oryx gazella)
LC, 188kg
Nilgai (Bovidae Boselaphus tragocamelus)
LC, 182kg


Mountain Anoa (Bovidae Bubalus quarlesi)
EN, 182kg
Hartebeest (Bovidae Alcelaphus buselaphus)
LC, 161kg
Black Wildebeest (Bovidae Connochaetes gnou)
LC, 157kg
Topi (Bovidae Damaliscus lunatus)
LC, 136kg
Siberian Ibex (Bovidae Capra sibirica)
LC, 130kg
Argali (Bovidae Ovis ammon)
NT, 114kg
Sumatran Serow (Bovidae Capricornis sumatraensis)
VU, 111kg
Walia Ibex (Bovidae Capra walie)
EN, 100kg
Bactrian Camel (Camelidae Camelus ferus)
CR, 555kg
Guanaco (Camelidae Lama guanicoe)
LC, 128kg
Moose (Cervidae Alces americanus)
LC, 541kg
Eurasian Elk (Cervidae Alces alces)
LC, 462kg


Red Deer (Cervidae Cervus elaphus)
LC, 241kg
Sambar (Cervidae Rusa unicolor)
VU, 178kg
Barasingha (Cervidae Rucervus duvaucelii)
VU, 171kg
White-lipped Deer (Cervidae Przewalskium albirostris)
VU, 162kg
Marsh Deer (Cervidae Blastocerus dichotomus)
VU, 113kg
Reindeer (Cervidae Rangifer tarandus)
LC, 109kg
African Elephant (Elephantidae Loxodonta africana)
VU, 3825kg
Asian Elephant (Elephantidae Elephas maximus)
EN, 3270kg
Grevy's Zebra (Equidae Equus grevyi)
EN, 408kg
Plains Zebra (Equidae Equus quagga)
LC, 400kg
Mountain Zebra (Equidae Equus zebra)
VU, 282kg
Kiang (Equidae Equus kiang)
LC, 281kg


African Wild Ass (Equidae Equus africanus)
CR, 275kg
Przewalski's Horse (Equidae Equus ferus)
EN, 250kg
Asiatic Wild Ass (Equidae Equus hemionus)
EN, 235kg
Giraffe (Giraffidae Giraffa camelopardalis)
LC, 965kg
Okapi (Giraffidae Okapia johnstoni)
NT, 230kg
Hippopotamus (Hippopotamidae Hippopotamus amphibius)
VU, 1536kg
Pygmy Hippopotamus (Hippopotamidae Choeropsis liberiensis)
EN, 235kg
Eastern Gorilla (Hominidae Gorilla beringei)
EN, 149kg
Western Gorilla (Hominidae Gorilla gorilla)
CR, 113kg
White Rhinoceros (Rhinocerotidae Ceratotherium simum)
NT, 2286kg
Indian Rhinoceros (Rhinocerotidae Rhinoceros unicornis)
CR, 1844kg
Javan Rhinoceros (Rhinocerotidae Rhinoceros sondaicus)
CR, 1750kg

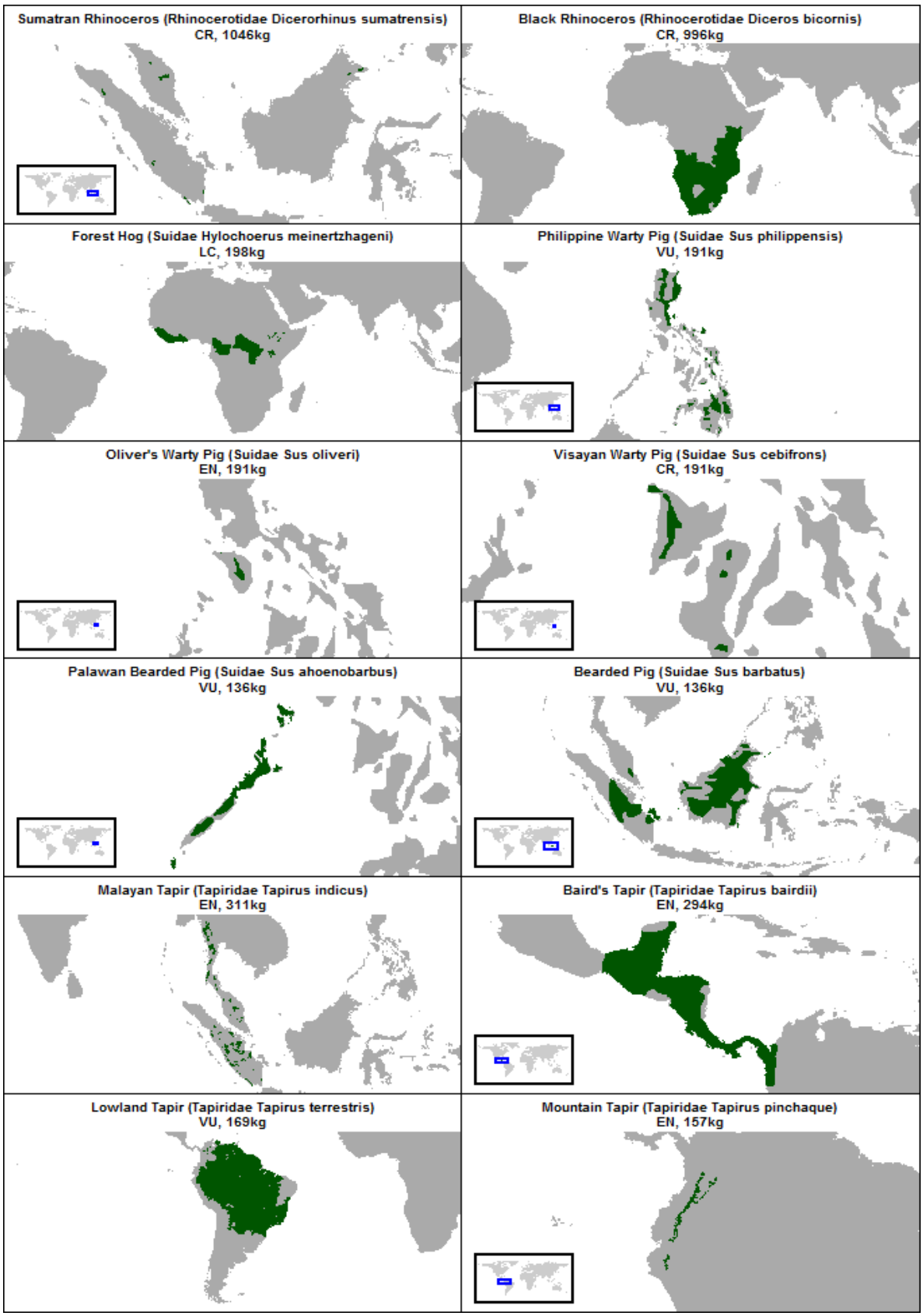


fig. S6. Current range maps (sorted by family) for the 72 large herbivores not classified as extinct in the wild (EW). Ranges are from the IUCN (*1*) and do not include introduced distributions. Ranges shown are regions where each species is extant or probably extant, except for the kouprey (*Bos sauveli*), which is possibly extinct throughout its range. Some ranges are likely much more fragmented than shown on these maps. Use caution when viewing these maps

because of unknown errors in the boundaries of individual species ranges. See table S1 for acronym definitions.